



UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Offic

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Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/328,391 06/09/99 BERGER

V 0154-2811-2

022850 MMC2/0522  
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EXAMINER

BROCK II, P

ART UNIT	PAPER NUMBER
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2815

DATE MAILED:

05/22/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/328,391	BERGER ET AL.
	Examiner	Art Unit
	Paul E Brock II	2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) \_\_\_\_\_ is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claims 1-12 are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) Notice of References Cited (PTO-892)
- 16) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 18) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 19) Notice of Informal Patent Application (PTO-152)
- 20) Other: \_\_\_\_\_

***Election/Restrictions***

**DETAILED ACTION**

***Election/Restrictions***

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species I: A photodetector having only two ohmic contacts wherein the transfer barrier layer is composed of a graded layer and further wherein:

Species IA: Drawn to the invention depicted in figures 3 and 4 wherein the device has only two ohmic contacts both being in connection with the storage layer with no mesa structure.

Species IB: Drawn to the invention depicted in figures 3 and 5 wherein the device has only two ohmic contacts both being in connection with the storage layer with a mesa structure.

Species IC: Drawn to the invention depicted in figures 3 and 6 wherein the device has only two ohmic contacts one being in contact with the storage layer and the other being in contact with the quantum well layer.

Species II- A photodetector device having two ohmic contacts wherein one of the layers is a semiconductor material in which there naturally prevails an electrical field of piezoelectric origin that creates a sloped band in a constant composition transfer barrier layer and further wherein:

Species IIA: Drawn to the invention depicted in figures 9 and 4 wherein the device has only two ohmic contacts both being in connection with the storage layer with no mesa structure.

Species IIB: Drawn to the invention depicted in figures 9 and 5 wherein the device has only two ohmic contacts both being in connection with the storage layer with a mesa structure.

Species IIC: Drawn to the invention depicted in figures 9 and 6 wherein the device has only two ohmic contacts one being in contact with the storage layer and the other being in contact with the quantum well layer.

Species III: A photodetector device having four ohmic contacts wherein the two additional ohmic contacts are employed to create an electric field across a transfer barrier layer of constant composition and further wherein:

Species IIIA: Drawn to the invention depicted in figures 10 and 4 (completely depicted in figure 8) wherein the device has four ohmic contacts the first two being in connection with the storage layer with no mesa structure, the third being in contact with a doped contact layer on one side of the Barrier/Well/Barrier/Storage/Barrier layers, and the fourth ohmic contact has a connection with a second contact layer on the other side of the Barrier/Well/Barrier/Storage/Barrier layers.

Species IIIB: Drawn to the invention depicted in figures 10 and 5 wherein the device has four ohmic contacts the first and second being in connection with the storage layer with a mesa structure there between, the third being in contact with a doped contact layer on one side of the Barrier/Well/Barrier/Storage/Barrier layers, and the fourth ohmic contact has a connection with a second contact layer on the other side of the Barrier/Well/Barrier/Storage/Barrier layers.

Species IIIC: Drawn to the invention depicted in figures 10 and 6 wherein the device has four ohmic contacts one being in contact with the storage layer, the second ohmic contact being

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in contact with the quantum well layer, the third being in contact with a doped contact layer on one side of the Barrier/Well/Barrier/Storage/Barrier layers, and the fourth ohmic contact has a connection with a second contact layer on the other side of the Barrier/Well/Barrier/Storage/Barrier layers.

Applicant is required under 35 U.S.C. 121 to elect a single one of the nine disclosed species among species IA – IC, IIA – IIC and IIIA – IIIC for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1 and 2 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to

be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703)308-6236. The examiner can normally be reached on 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703)308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II  
May 18, 2001



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800